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BAD LUCK, BUT—?

LAST week we published the seventh list of compensation values for gas stocks, bringing the total of stocks so far dealt with to 640, or about a third of the 1,800 different securities covered by the Gas Act, and representing just under two-thirds of the total estimated compensation value of £200 mill. It is extremely unfortunate for those who must sell out that each successive list has been published more or less simultaneously with a fall in the Stock Exchange quotation for British 3% Gas Stock. This new long-dated Stock (1990-95) was issued at par on vesting date, and on the opening day it was quoted at a slight premium on the Stock Exchange. Since the beginning of May, however, gilt-edged securities generally have experienced one of the worst slumps of recent years, and British Gas Stock at the time of writing had recovered to 91 after having fallen to a record low level of 89½. The stock market slump is general, and is by no means confined to gas. Transport and electricity have shown similar trends, and probably the only reason why there has been less fuss lately about these than there has been about gas is that transport and electricity stockholders have had a longer time in which to settle down to nationalisation and to decide whether or not to dispose of their holdings in favour of something they deem more attractive. The industrial share market has gone very much the same way, and with very few exceptions there is little to arouse speculative interest at the present time.

Whatever the holders of pre-nationalisation gas companies' securities may have felt about nationalisation—and there is no denying that most of them would have preferred the industry to remain in the hands of private enterprise—they have either approved the values fixed by the Act or have loyally accepted the terms reached as a result of negotiation by their duly appointed Stockholders' Representatives. Throughout the long history of gas finance, gas securities were never regarded as commodities to be bought and sold by way of a gamble according to the varying state of the market. They were acquired—mainly by very small investors—as a source of a modest and regular return, and apart from the few who may for political or other reasons wish to wash their hands of anything bearing the stamp of nationalisation it may be assumed that the proprietors of old will wish to continue to regard their holdings of British Gas Stock—no matter how much less interest they yield—in the same light. Probably as many as 90% of the present holders would have had no wish to sell even at par, and to that extent they will not be greatly perturbed by the fact that £100 worth of Gas Stock will not fetch more than £91 today. The other 10%, including people who may need to sell out in order to pay off overdrafts and so forth, are, of course, seriously concerned by the fall in value, but it is not unreasonable to question whether they would have been in a much more favourable position if their money had been invested in, say, transport or textiles or tobacco, instead of gas.

In a letter to *The Times* on Aug. 11 Mr. Brendan Bracken asked for aid 'in getting a measure of justice for the many persons of small means who invested their savings in gas stock.' He referred to the many thousands of workers in the industry who had become co-partners under private enterprise who as such held securities of their gas companies which amounted to more than £4 mill., and to the great number of holdings acquired independently by these and other gas workers and their families. 'The Government,' he said, 'forced these stockholders to surrender their properties in return for a security which almost halved the dividends they formerly received. This compensation was utterly unjust, for the Government refused to make any allowance for the fact that the earning power of gas companies during the war was sharply diminished by Statutory Order forbidding them to pass on many of their greatly increased costs to the consumer.' Mr. Brendan Bracken went on to recall that in the course of the debate on the Gas Bill the Opposition tried to secure payment in cash to stockholders who were forced to part from their properties; instead they were promised a 'safe' security backed by Government credit—a security which since vesting date has fallen by 10%. He contended that it would be a simple matter for the Minister of Fuel and Power, when agreeing over compensation values, to make an adjustment to prevent undeserved loss of capital.

On the same day the *Financial Times* in its leading article said the loss to stockholders as a result of the fall in market value of British Gas Stock would run into several millions. The important Gas Light and Coke Ordinary stock, for example, had yet to be valued, and the loss on this alone, even if the price of Gas Stock did not fall further, would be about £2¼ mill. 'If Britain is to retain any reputation for fairness under any Government,' continued the article, 'there must be an Amending Act, giving compensation in money's worth, whatever the date on which it is awarded. It is quite irrelevant for the Government to say that no complaints would have been made if the price of gilt-edged had risen instead of falling since the vesting date. It is no part of the investor's duty, when receiving compensation, to be a speculator in the gilt-edged market. . . . All further valuations should be delayed and an Amending Act should be given priority when Parliament meets. The Amendment should state that future compensations will be paid in Gas Stock at the market price, and not at par.'

For good or ill, the Gas Act laid it down that British Gas Stock was to be exchanged for existing securities on a certain basis—a basis which we do not think any of the Stockholders' Representatives, or in fact anyone else inside the industry, ever regarded as satisfactory. On the whole, the Stockholders' Representatives have been satisfied with the way in which the Ministry of Fuel and Power has interpreted that basis. That is not to say, by any means, that they have got all they asked for, but so far, at least, they have not found is necessary to invoke the adjudication of the Gas Arbitration

Tribunal set up expressly for that purpose. Many securities remain to be valued—Colonel R. H. Studholme in a letter to the *Financial Times* of Aug. 12 suggested that the end of the queue might not be reached for another year or so—and no-one knows what may happen to gilt-edged securities in the meantime. The yardstick by which claims have been measured to date may have shrunk in the wash, but it would be difficult to say exactly how far it would be fair to vary it at the present juncture. Retrospective amending legislation would be open to the objection that British Gas Stock bought and sold at or above par early in May may well have changed hands many times since then. Colonel Studholme, in the letter to which we have referred, suggested one way out without further leglisation: 'It is true that the Gas Act does not allow compensation stock to be issued below par, but it does leave the Minister free (when that price is much higher than the market value) to agree a proportionate addition to the value of the old securities. We stockholders' representatives can be relied upon not to object.' A financial leader in *The Times* of Aug. 15 commented that 'there would be no complaint if the Government adjusted compensation each way, upwards or downwards, to the value of compensation stock at the date of valuation.' In the same issue Mr. G. Murray Burton urged in a letter that 'the least the Government can do is to adjust the redemption date to (say) the middle fifties.'

Will the Government give heed to the fact that an undoubtedly large body of the public are entitled to feel that hardship has been thrust upon them as quickly as contentious legislation was thrust through the Committee of the House of Commons? Even if Mr. Brendan Bracken must appear politically biased in the eyes of the pundits, they should be prepared to consider the balanced arguments of *The Times* and the *Financial Times*. We shall await with interest some statement, if not from a Minister, at least from someone whose care is public relations. Meanwhile, our columns are open for discussion of this first major grouse under the new régime.

DISPOSAL OF GASWORKS EFFLUENTS

ATTENTION to the subject of the proper disposal of gasworks effluents in the general interests of the community is by no means on the decrease. For very many years the gas industry has been alive to the problems and has not been idle in seeking satisfactory solution to them. The work of the Liquor Effluents and Ammonia Committee of the Institution of Gas Engineers continues unabated and, indeed, is assuming greater importance than ever. There is increasing awareness on the part of river authorities, catchment boards, and sewage authorities of their duties to the areas and the public they serve, in ensuring freedom from contamination of water supplies. As the Committee pointed out in its last report, the gas industry has a very difficult task in dealing adequately with its effluents, as even small traces are toxic to river and pond life and to vegetation, and also interfere with sewage purification. Discharge of crude liquor into streams and ditches is causing trouble; and there is need for particular attention to effluent problems in the planning of new works and also in the replanning of old. It is altogether satisfactory that the liaison is close between the gas industry and the water authorities and the Director of Water Pollution Research.

The increased demand for gas during the past few years has resulted in a considerable increase in the volume of crude liquor and of effluent liquor from concentration plants, and in many instances the quantities being discharged into sewers when the 1937 Drainage of Premises Act was passed have since been exceeded. Towards the end of last year the law respecting prevention of pollution of rivers and streams was stiffened, and in the *Journal* of Oct. 20, 1948, we published a specially contributed article by Mr. L. F. Stemp, summarising the legal position clearly and concisely. Now, in view of the passing of the River Boards Act of 1948 and the nationalisation of the gas industry, the Institute of Sewage Purification has issued a memorandum on the subject (*Journal* of July 20 last, p. 215). The memorandum is in the nature of an interim report, and the summary we gave has aroused much interest among our readers. We may recapitulate briefly here the four conditions set out for acceptance of gas liquor by sewage authorities:—(1) The area of gas supply should be no greater than the district draining to the sewage works and there are no abnormally large demands for gas for industrial purposes. (2) Whenever possible the liquor discharged should be spent liquor. (3) In some cases it may be preferable to vary the flow of gas liquor to the sewers so that the maximum amount of liquor is received into the sewers when the flow of sewage is at its peak. (4) The gas liquor should be free from tar. It is argued that there should be greater uniformity in the method on which charges are based, and it is recommended that large-scale work on the purification of gas liquor is needed to determine the amount of plant required for the purpose.

Over a long period of years the gas undertaking at Hinckley has been particularly closely associated with the work of the Liquor Effluents and Ammonia Committee; and in view of the current publicity being given to this matter of the disposal of gasworks effluents we would recall the pungent comments of Mr. A. B. Britton during discussion at the autumn research meeting of the Institution last November. Speaking as a result of experience, he asked whether gas undertakings were in fact giving the sewage authorities a square deal. He maintained that there are still many undertakings which are putting crude liquor into the drains at any speed and at any time, in utter disregard of the trouble they might be causing to the sewage works manager or the sewage disposal authority. And so long as gas undertakings continued to put their crude liquor into the drains without giving any consideration to the problems of the sewage works, he thought they must expect to be asked to pay. Remarking that if gas undertakings would take the trouble to study the reports of the Liquor Effluents and Ammonia Committee and the booklet by Dr. A. Key, they would find therein 90% of the solution of the problem. There was much that could be done to help the sewage authorities, added Mr. Britton; and it devolved itself into one of two alternatives—either to pay the sewage authorities to treat the liquor or to take the easier and cheaper way, which was to put in plant which would partly treat the liquor and so make it easier for the sewage authorities to dispose of it. Finally, he urged upon the gas industry to fight the tendency to assess the charges on an oxygen-absorption value.

Apart from ammonia liquor, there are a number of minor effluents which have to be taken into consideration, and would become highly important in the case of a large works placed on a new site without the advantage of water-purification facilities. This point was stressed at the Institution meeting in June last year in the paper by Mr. C. Cooper and Mr. D. M. Henshaw. Minor effluents include surface water, which may collect washings from oxide, coal and coke storage, and oil spillage; surplus water from coke quenching systems; condensate from water gas and carburetted water gas; aqueous distillate from crude benzole plants; water washings and condensates from benzole refining; purgings from liquid purification processes. Nor should effluents of the domestic type from lavatories, canteens, and so on, be forgotten. Together these 'minor' effluents may well constitute a major problem. Effluents from liquid purification processes may, indeed, of themselves constitute a problem of considerable magnitude. The problems as a whole, major and minor, call unmistakably for co-operation between gas undertakings themselves and between the gas industry as a whole and the sewage authorities, who should be encouraged in the knowledge and belief that they are the friends of the gas undertakings rather than their enemies.

GRIDS AND GATEAUX

Less than 50 yards away from the *Journal* offices, a Fleet Street restaurant has recently embellished its main window with a display which, to say the least, is unusual, if not unique. It consists of a model of an electric pylon, three feet high, and complete even to the anti-climbing barriers of fine wire. Two plastic trays in the centre of the edifice carry two black cats, a miniature milk saucer, a child's toy tea-table and chairs, flanked by two pastries. We can only imagine that it is meant to portray 'electricity in the home,' and that the proprietor is an ex-engineer of the London Electricity Board. Further investigation, at the cost of a small cup of coffee and one of the pastries, heartened us with the news that the establishment's cooking is done by gas. Could it be aesthetic qualms which prevented the display of a model gasholder carrying a plate of éclairs?

TAKE HEED

According to the *Electrical Times* the market fot electrical goods has undergone a market change. 'In future,' writes 'Meteor,' 'the main outlet for goods is likely to be found in the moderate income class, where the larger demand now enables the more expensive type of appliances to be introduced in a cheaper form or smaller goods to be mass produced of a much better quality for a lesser increase in price.' Mass production is, of course, only possible if the demand is great and the variety in a particular range of appliances is strictly limited. We do not know what appliances 'Meteor' has in mind; probably he is thinking of the small space heating units which constitute a menace not only to electricity generation at times of peak load but to overall national fuel economy. Or, maybe, electric immersion units, which, with a lagged installation have a high efficiency in use but a heavy loading and also constitute a menace at times of peak demand. The potential demand for gas water heaters of all types is enormous, but again in many cases this can only be met by mass production, and the manufacturers are being crippled by purchase tax. Demand for the lower-priced flueless gas heater should be cultivated by a greater volume of propaganda, a better sense of design. and, above all, by a much livelier interest by individual gas undertakings. Unless keener enthusiasm is displayed by gas undertakings in pushing the sales of gas appliances generally the public will, for better or worse, turn to electrical counterparts. There is competition in the air, but we think the gas industry underestimates its extent.

A FACTUAL WARNING

A sharp reminder of the ubiquitous challenge by electrical appliances can be found in the Hulton Readership Survey for 1949, published recently by Hulton Press, Ltd. This independent, factual poll is conducted on rigid scientific lines, and its analysis of customs and habits, based on a representative cross-section of the community, is now accepted as a standard work of reference. One of its tables is concerned with the demand for gas and electrical appliances, and indicates very clearly that in the higher income group—above £650 per annum—there has been an increase during the past year in the percentage of households which use electricity only. In this group, comprising about 1½ mill. households, 19% have shown a preference for electricity, compared with 16% a year ago. As this class is, for its size, one of the largest consumers, there is cause for some hard thinking and speedy action by gas undertakings. In the other two groups into which the survey is divided, the percentage of households using electricity alone in the middle income group—£450 to £650 per annum—has declined in the year from 18% to 16%, the increased demand for gas appliances being reflected in an increase from 75% to 79% in the number of households which receive both gas and electricity supplies. Demand in the lowest income group alone has remained static.

MANPOWER IN THE MINES

The July issue of the monthly bulletin of coal statistics, published by the Ministry of Fuel and Power, records a continuation of the decline in manpower in the mines which over recent weeks has been so persistent as to cause anxiety. In the *Journal* of March 23 this year we had occasion to point out that in spite of an increase in the number of faceworkers for the first 10 weeks of the year, the current rate of production, if maintained, would not result in the desired total of between 215 mill. and 220 mill. tons for 1949, representing an increase of between 6½ mill. and 11½ mill. tons over the output for 1948. Total production after seven months stands at 120½ mill. tons, only 3 mill. tons more than at the same time last year, and bears out the truth of our prediction. But since our previous review of progress the manpower situation has deteriorated considerably. In the week ended July 23 wage-earners in the industry totalled 720,700 compared with a weekly average of 726,593 in March, and for the 29 weeks to date they averaged only 725,000 compared with the year's target of 736,000. In spite of an increase compared with last year, from 40.4% to 41%, in the percentage of all workers employed at the coal-face, the absolute figure for face-workers has fallen by 2,100 from the March figure of 298,700; this is 14,400 short of the provisional target of 310,000 face-workers by the end of the year. The most disturbing factor is the drop in what is termed 'the excess of recruitment over wastage.' The recruitment, from a variety of sources, of 18.049 men during the first quarter has been offset by an almost equal departure of 17,727 miners from the industry. The net gain has been precisely 322, which must be weighed against a net gain of 5,228 for the similar period last year. The position is indeed serious, but as yet no extraordinary measures have been taken by the National Coal Board to halt this retreat. As evidenced in the Board's annual report, the emphasis is now placed on a call for greater output from the available forces at their disposal rather than upon an increase in numerical strength. Moreover, the Board is hell-bent to increase last year's small financial surplus still further in 1949 by maintaining a firm resistance to all demands from the industry for any increases in wages which cannot be justified by a parallel increase in productivity. In consequence the Board's accounts for the first quarter of this year are the most favourable issued since its establishment in 1947, showing a profit, before charging interest, of £7,272,983, compared with £3,816,154 in the same period last year, and a surplus, after deduction of interest and profits tax, of £3,832,650, as against a mere £501,154 a year ago. The Board has thought fit to add a warning note in circulating the accounts to the effect that we should not assume that results will necessarily be as favourable in the second or third quarters of the year, which are affected by holidays. Basically, however, there is no indication of any change in the Board's ca'canny financial policy. The wisdom of this course has been widely acclaimed, and there is much to be said in its favour, but it would seem evident from the present manpower trend that the Board cannot have its cake and eat it.

Personal

Sir CYRIL ENTWISTLE, K.C., M.C., has been elected to the Board of Coalite and Chemical Products, Ltd.

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Mr. T. MACDOUGALL, Engineer and Manager of the Nairn undertaking since 1946, has been appointed Deputy Engineer and Manager to Londonderry Gaslight Company. He first entered the gas industry at Galashiels and was for some years manager at Linlithgow before going to Nairn.

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The Minister of Fuel and Power has appointed Lord FORRESTER OF CORSTORPHINE as a part-time member of the North Thames Gas Board. Lord Forrester, who resides at Gorhambury, St. Albans, Herts, is a Director of a number of companies in the Enfield Cable group.

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Captain T. H. THORNEYCROFT has tendered his resignation from the office of Deputy Chairman of the Scottish Divisional Coal Board with effect from Aug. 31, in order to take up an appointment outside the coal industry. The National Coal Board has invited him to remain on the Divisional Board as a part-time Director, and Captain Thorneycroft has consented to do so until the end of the year.

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A barograph and binoculars from the staff of Perth Gasworks were recently presented to Mr. A. R. WILSON, who retired in May from the position of Works Manager. Mr. W. Nicol Baird, Engineer and Manager, handed over the gifts informally at Bridge of Earn Hospital, where Mr. Wilson is a patient. Aged 64, Mr. Wilson was due to retire in December, but had to resign earlier owing to ill-health. He gave 48 years' service to the Corporation Gas Department, starting as an office boy in 1901 at the former premises in Scott Street. Friarton gasworks were opened in the same year and Mr. Wilson served there under five successive managers. As Production Engineer he saw the output at Friarton increase from 100 mill. cu.ft. when he first started, to 790 mill. cu.ft. when he resigned.

The Scottish Gas Board has made the following appointments: Mr. JOHN H. FULTON, Engineer and Manager, Haddington, to be Engineer and Manager of the Kirkcaldy undertaking; Mr. DOUGLAS W. DAVISON, Assistant Engineer and Manager, Inverness, to be Engineer and Manager of the Johnstone undertaking.

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Our attention has been drawn to two errors in the list of *Journal* Directory corrections published on Aug 3, p. 308. Under the Barrhead undertaking, Mr. G. HAMILTON has *not* relinquished his position as Engineer and Manager. Under the Shrewsbury undertaking, Mr. F. CAUDWELL has been promoted Divisional Distribution Superintendent and not Works Superintendent, as shown, and Mr. A. S. GREENWAY, shown as Distribution Superintendent, is now Assistant Engineer to the undertaking. Mr. T. PURSLOW has been appointed Distribution Superintendent at Shrewsbury.

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Councillor R. GRIFFITHS, J.P., Sales Director of John Harper & Co., Ltd., Albion Works, Willenhall, Staffs., manufacturers of Beatrice and Harper Housewares and other products, has recently retired after 49 years' service with the firm. In addition to his business activities, he has many public interests and is now Chairman of Willenhall U.D.C. At a farewell dinner attended by members of the works and staff accompanied by their wives, Mr. John Harper, Chairman of the Company, presented a silver tea set to Councillor Griffiths in recognition of his long and valued service.

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The Gas Consultative Council for Scotland under the chairmanship of Mr. A. T. MORRISON (Aberdeen) will comprise: Councillor C. BAIRD (Dundee), Mr. W. BAXTER (Banton, Kilsyth), Provost T. BELL, J.P. (Dumfries), Baillie H. G. BRECHIN (Aberdeen), Mrs. G. COOK (Edinburgh), Mr. D. DUNCAN (Perth), Mr. A. FAIRGREIVE, O.B.E., M.C. (Galashiels), Mr. W. W. FERGUSON (Ayr), Colonel G. GARDNER-MCLEAN, O.B.E., T.D. (Glasgow), Provost J. S. GELLATLY, J.P. (Rosyth), Miss I. S. GIBSON (Glasgow), Mr. A. HART (Glasgow), Mrs. C. HILL (New Elgin, Morayshire), Mr. R. B. MCKINNELL (Dumfries), Councillor S. LEITCH (Glasgow), Provost H. RAMSAY (Stonehaven), Mr. W. RICHARDSON (Glasgow), Baillie R. WEST RUSSELL (Edinburgh), Councillor Dr. STRATHERN (Ardrossan), Provost T. WILSON (Motherwell), and Mr. D. R. YOUNG (Kinross).

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Messrs. R. G. BURT, O.B.E., B.SC.(ENG.), M.I.MECH.E., and C. C. BATES have recently joined the technical liaison staff of the British Welding Research Association. Mr. Burt, who is a member of the Institute of Welding, was for a number of years on the staff of the Indian Stores Department and was latterly Deputy Director General (Inspection) of the Directorate General of Industries and Supplies in the Indian Ministry of Industry and Supply. Mr. Bates, who is an associate member of the Institute of Welding and an associate of the Institute of Engineering Inspection, has served with Underwater Welders and Repairers, Ltd., and for a number of years was on the technical inspecting staff of the A.I.D., Ministry of Aircraft Production. Mr. J. G. BALL has left the Association after eight years to accept an appointment as Principal Scientific Officer of the Ministry of Supply at the Atomic Energy Research Station, Harwell. Mr. A. BARKER, who has been Secretary of the Association since 1946, is leaving at the end of August to take up the appointment of Assistant Director of the Federation of Boot and Shoe Manufacturers.

Obituary

The death occurred on Aug. 2. of Mr. W. G. LING, who retired in 1946 after a total of 49 years' service in the gas industry. Mr. Ling, who was 65 years of age, entered the old West Ham Gas Company in 1897, and after long service in various showrooms he went to the old chief offices of the Gas Light and Coke Company in Horseferry Road, where he took charge of the main showrooms. He was later appointed Chief Showroom Salesman, a position which he filled with success up to the time of his retirement in 1946.

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Mr. STANLEY V. FAWKES, Assistant Engineer of the Yorktown (Camberley) undertaking, whose death was announced briefly in last week's *Journal*, had served the Company for 18 years and was in his 41st year. Prior to his appointment at Yorktown he received his early training with the Stroud (Gloucester) Gas Company where he was Technical Assistant. Mr. Fawkes was taken ill suddenly after work on Aug. 2, and within 24 hours his condition became so grave that he was taken to Aldershot Isolation Hospital suffering from infantile paralysis. He was found to have a rare associated form of the disease, and although everything was done to arrest the progress of the complaint, death occurred on Aug. 7.

NATIONAL BENZOLE ASSOCIATION

At the annual general meeting of the National Benzole Association on July 13, Sir Richard Pease, BART., tendered his resignation as President, and he is being succeeded by Sir Edgar Sylvester, K.B.E. Mr. S. A. Sadler, Chairman of Sadler & Co., Ltd., was re-elected Vice-President.

The Executive Committee is as follows:—*Scotland*, J. M. Mitchell; *N. England*, R. D. McCowan; *N.E. England*, R. Alsop, C.B.E., E. Crowther, Sir Richard Pease, BART., B. Sadler, S. A. Sadler, L. Shuttleworth; *Yorks, Staffs, and Derby*, S. Billbrough, E. L. Ford, G. A. Hebden, T. A. McKenna, C. A. Murray, M. H. Rollason, Sir Harold West; *N.W. England & N. Wales*, Colonel W. M. Carr, O.B.E., C. Lord; *W. England & S. Wales*, H. H. Bates, H. H. Merritt; *Midlands*, A. W. Lee, S. Robinson; *S. England*, Dr. T. H. Butler, Major A. G. Saunders, R. C. Todhunter; *Gas Council*, M. Milne-Watson, Colonel H. C. Smith, C.B.E., Sir Edgar Sylvester, K.B.E., W. M. Valon (S.E. Co-operative Scheme); *National Coal Board*, Leslie O'Connor, W. McGilvray; together with A. Hittinger (Chairman), and R. J. Smith (Director & General Manager of the National Benzole Company, Ltd.).

Mr. P. G. Somerville, who has been Secretary of the Association for 30 years, has retired and his successor is Mr. W. E. Cartwright.

Diary

Sept. 2.—**Northern Junior Gas Association:** 'The Production of Petroleum Products, with particular reference to Lubricants,' Ian A. Howden, B.Sc., Divisional Lubricant Supervisor, Newcastle Division, Shell-Mex and B.P. Ltd., Grand Hotel, Sunderland, 2.30p.m.

Sept. 6 and 7.—**Irish Gas Association:** Annual Meeting. Alliance and Dublin Consumers' Gas Company's Lecture Theatre, D'Olier Street, Dublin.

Sept. 8 and 9.—**Combustion Engineering Association:** Conference on the Rational Allocation of Coal, Palace Hotel, Buxton.

Sept. 12-16.—**Association of Public Lighting Engineers:** Annual Meeting, Llandudno.

Sept. 12.—**Women's Gas Council:** Executive Committee Gas Industry House, 1p.m.

Sept. 13.—**Women's Gas Council:** Headquarters Members. Visit to the Cavendish Works (De La Rue). Leaving Gas Industry House, 2p.m.

Sept. 15.—**North British Association:** Annual General Meeting, Music Hall, George Street, Edinburgh.

Sept. 29.—**Midland Association of Gas Engineers and Managers:** Visit to the works of the Midland Tar Distillers, Ltd., Oldbury.

The Gas Arbitration Tribunal have issued with the approval of the Lord Chancellor the Gas Arbitration Tribunal Rules, 1949. These lay down the procedure to be adopted by parties who wish to institute proceedings before the Tribunal to determine any question or dispute arising from the Gas Act, but do not include Scottish proceedings. Copies may be obtained from H.M.S.O., price 2d. The office of the Tribunal is at present at 24, Abingdon Street, London, S.W.1.

The First Sectional Plant of the new gas station under construction at Griffithstown, Pontypool, has come into operation, and hundreds of housewives gasped with delight as they finished their cooking in half the time it had taken for years. Gas jets on cookers burned higher and there was big improvement in lighting. The second sectional plant of the new works comes into operation in a fortnight's time, and there will then be sufficient volume of gas to meet the demands of the peak periods. The area supplied by the works covers Cwmbran, Usk, Pontypool, Abersychan, Blaenavon, Blaina, Brynmawr, and Abercarn.

The Output of Coal for the week ended Aug. 6, covering the period of Bank Holiday, was the lowest for a year. Returns issued by the Ministry of Fuel and Power gave the total as 2,580,700 tons—a fall of 121,200 tons compared with the previous week, and the lowest figure since Bank Holiday week last year, when production was 2,350,000 tons. Total manpower in the industry declined during the week from 720,700 to 720,200, but the number of face-workers increased in the same period by 300 to 296,900. Total gas available for the week ended Aug. 5 was 7,522.7 mill. cu. ft., compared with 7,362.6 mill. in the corresponding week last year. During the first 31 weeks of this year the cumulative total of gas available was given as 311,779.1 mill. cu. ft., against 297,103.2 mill. in the same period of 1948. Figures for the electricity industry in the same periods show a total of 620.6 mill. units sent out for public supply from solid fuel-fired stations, an increase of 46½ mill. units over the same week last year, and a cumulative total of 26,088.7 mill. units, compared with 24,492.4 mill. in 1948.

THE 'NEW LOOK' IN THE GAS INDUSTRY

IN an address to the Nalgo Summer School, at the University College of the South West, Exeter, on July 16, Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, said: 'We hope to play our part in the gas industry in the *spirit* that it is a public service, but equally with the *sense* that it is a commercial venture. . . . In this industry, whether we be producers or consumers, we cannot neglect both the whip of necessity and the carrot of reward.' Speaking as a former member of Nalgo and with a long experience of local government affairs, Mr. Mervyn Jones paid tribute to the many great achievements of local authorities in the gas service and in other spheres. At the same time, he said: 'May one dare to mention other certain unfortunate tendencies which appear particularly to have manifested themselves with some municipal authorities? Would I be wrong in saying that there were instances of possibly a too scant regard to the transient susceptibilities of the public? There have been far too many instances in recent months of area Boards finding that municipal authorities had refused to revise their price structure in the light of actual costs and were content to permit gas consumers to be subsidised by ratepayers. Of course, there must be a sense of balance.'

Greater Resources

A review of the prospects of the gas industry, he continued, indicated that there were many advantages in the 'new look.' The greater resources of the Gas Council facilitated the obtaining of capital on favourable terms to finance necessary renewals and improvement schemes, whereas in the past the industry had suffered gravely from the virtual impossibility of forward financial planning. The best technical advice was now available to all undertakings irrespective of size. One of the first acts of the area Boards had been to bring into immediate operation a technical advisory service which had already achieved much in the improvement of the quality of gas and residuals, particularly at the smallest of the undertakings vested in the Boards. There were already signs of healthy competition between undertakings in the area, which tended to fulfil and not destroy the essential unity within the control of an area Board. There were also improvements in the prospects of personnel of all scales and all grades. Experience gained in service with different types of undertakings, the added responsibility of participation in group or divisional management within the area, must in time develop still further the capacity for assuming higher and wider responsibilities in the service.

There were also potential dangers, as well as definite advantages, which could arise from over large, over organised, over centralised administrative structures in industry or the public service. He was confident that these had been largely avoided already by the very nature of the structure established by the Gas Act. In the case of both the Gas Council and each area Board it was remarkable how those responsible had gone out of their way to ensure in practice that just as there had been national devolution, so within the area itself there should be similar devolution. Everywhere, divisions or groups and even unit undertakings were being encouraged, and indeed, exhorted to continue to exercise initiative and independence.

In conclusion, Mr. Mervyn Jones expressed the desire of the area Boards to further the activities of all the many voluntary associations within the industry. He welcomed the opportunity to be present at the Summer School which was serving as a research laboratory to the gas industry and the other great industries which were now part of Britain's public service.

Some Nationalisation Benefits

Addressing the Willenhall Rotary Club, Mr. Fras. C. Briggs, Wolverhampton Divisional Manager of the West Midlands Gas Board, said he believed it was inevitable that the price of gas must rise, not necessarily due to nationalisation of the industry, but because of the increased cost of coal, which accounted for 60% of the gas industry's expenditure. He felt, however, that people would not mind paying a little extra so long as they obtained an efficient service.

Mr. Briggs outlined possible dangers and advantages of gas nationalisation, which, he said, differed vitally from other nationalisation schemes in that the industry was largely decentralised with each area Board controlling its own affairs. There had been no indication that workers in gas undertakings would follow the example of those in other nationalised industries and threaten to use force to obtain immediate advantage for themselves without regard for the economic position of the industry or the country.

The danger of the deadening hand of bureaucracy was being avoided and he did not believe that removal of the incentive which came from private ownership and control would induce the spirit of apathy and indifference. The individuality of each undertaking and competition between them would be preserved within the organisation for the West Midlands.

Substantial improvements in public service could be won by gas nationalisation, and when supply conditions permitted, there should be a wider choice of appliances, regularised conditions of sale, and a gradual raising of standards of service with greater regard for the convenience of the public over a wide area.

AMENDED GAS REGULATIONS

In exercise of powers conferred upon him by section 18 of the Gas Act, 1948, the Minister of Fuel and Power has made the Gas (Vesting of Assets) (Amendment) Regulations, 1949 (Statutory Instrument 1949 No. 1418, obtainable from the Stationery Office, price 2d.).

The Gas (Vesting of Assets) Regulations, 1949, provided that undertakers to whom section 18 of the Gas Act, 1948, applied should deliver to Gas Boards particulars of all real or heritable property held or used partly for the purposes of their gas undertakings and partly for other purposes, or partly in their capacity as gas undertakers and partly in other capacities, and of agreements entered into partly for the purposes of their gas undertakings and partly for other purposes or partly in their capacity as gas undertakers and partly in other capacities.

Those regulations also prescribed machinery for the exclusion of such property and agreements from, or their inclusion in, the property and agreements transferred to Gas Boards under that Act, by means partly of the delivery of the particulars, partly of the service of notices and counter notices. Similar provision was made with regard to claims for the substitution in the case of certain agreements of separate agreements for the Gas Board and the undertaker, and for the grant by either of them to the other of rights and interests over property.

The regulations fixed time limits for this machinery, July 15, 1949, for the majority of the notices, and July 31, 1949, for the counter notices.

It has been found that for various reasons these time limits were insufficient. They are therefore extended by the amended regulations now issued so as to run in certain cases from the delivery of the undertakers' particulars, and in others up till Dec. 31, 1949.

PUBLIC LIGHTING ENGINEERS

Arrangements for the annual conference of the Association of Public Lighting Engineers to be held at Llandudno from Sept. 12 to 16 are well in hand, and a full week's programme has been issued. Delegates attending the conference will have an opportunity of inspecting a range of lamp columns to which will be affixed lanterns of varying designs, both gas and electric. Also to be seen will be bollards, road signs, motor tower wagons, ladders, syphon emptying outfits, &c., all of which are essential to the public lighting engineer and his department in carrying out the duties of providing and maintaining good street lighting. In addition, arrangements have been made for manufacturers of accessories, such as time switches and clock controllers, to show items of equipment.

This year marks the 25th anniversary of the Association, and from the number of members and delegates who have already indicated their intention of attending, another large attendance seems to be assured, delegates being appointed from all parts of the country and also from overseas.

Mr. A. S. Tapsfield, of the City Engineer's Department, Corporation of the City of London, will be inducted as President at the opening meeting of the Conference, and Councillor A. Macfarlane, J.P., Chairman of the Llandudno Urban District Council, will perform the official opening ceremony.

The business meeting will be held on Sept. 12, and the newly-inducted President will deliver his Presidential Address on the Tuesday morning. In the afternoon the programme includes a paper on 'Code or Specification' by Mr. F. C. Smith, F.C.S., M.INST.GAS E., F.I.E.S. On the Wednesday afternoon there will be a collective paper on 'Recent Developments in Gas Street Lighting Equipment,' based on details supplied by the manufacturers and presented by the Society of British Gas Industries, following a similar paper during the morning dealing with corresponding developments on the electricity side. Thursday's papers will include one on 'Planning of Street Lighting for a Proposed New Town' by Mr. W. H. Welch, Eastern Gas Board (Tottenham Division), and at the final session on the Friday M. L. Gaymard, Chief Lighting Engineer, Paris, will present a paper on 'Public Lighting and Aesthetics.'

NEW COKE OVEN BATTERY

The first coke ovens to be begun and completed since the vesting day of the National Coal Board were officially opened at Coedely Colliery, near Tonyrefail, Glamorgan, on July 25. The new plant consists of 40 ovens, of which the first 20, just completed, are fired by coke-oven gas, while a further battery of 20 now under construction are of the 'compound-oven' type and can be fired with either producer gas or coke-oven gas. The scheme is a revision of an extension programme conceived by the previous owners, the Welsh Navigation Steam Coal Co., Ltd., and provision has been made for another battery to be added at a future date. The new batteries are a continuation of a line of 30 ovens, erected in 1914 and re-built in 1935 by the Coppée Co. (Great Britain), Ltd., who are also the manufacturers of the new installation.

The new ovens, in contrast to the old, are under-fired and are carried on a concrete platform beneath which a 10-ft. basement has been provided for individual adjustments to the gas burners. The present coking period of 40 hr. has been timed to work in with other operations on the site. A large Buchanan hot-coke car is directly loaded in traversing the discharge side of the ovens and carries the hot charge to a quenching tower. It is intended to extend this mechanised operation to the old ovens so that manual quenching will be entirely eliminated.

BRITISH STANDARDS INSTITUTION

The Rt. Hon Lord McGowan, speaking as President of the British Standards Institution at its annual meeting on July 27, referred to the greatly increased interest both by industry and the Government in the extension of voluntary standardisation on a national basis. He said that the Ministry of Supply's Committee for standardisation of engineering products had substantiated the view, long held by British industry, that the principles under which the B.S.I. worked were effective and could be considerably extended. The importance of standardisation had recently been stressed by the Anglo-American Productivity Council, and he maintained that there was probably no more effective means of increasing productivity.

A further significant development during the past year had been the co-operation of the nationalised industries with the Institution and the increased collaboration among large industrial users to assist manufacturers to reduce the number of types and sizes. Such progressive standardisation would greatly assist the economy of the country by enabling the introduction of longer runs and better production methods.

Mr. Roger Duncalfe, Chairman of the Institution, announced that the Government and industry had jointly agreed that industrial standardisation should be effected through the B.S.I. as the national standards body. Sir William J. Lark was elected to succeed Lord McGowan as President of the Institution.

COMPRESSORS AND EXHAUSTERS

A new British Standard for acceptance tests for positive-displacement compressors and exhausters (B.S. 1571 : 1949) has just been issued. These tests lay down the conditions under which reciprocating and rotary compressors and exhausters shall be tested in order that guarantees made by manufacturers in regard to output, power consumption, or speed may be verified.

Deviations of the test conditions from the guarantee conditions within which the tests are applicable are noted and guidance on pressure and temperature measurement is given. A recommended form of test report is also included, together with diagrammatic arrangements of the test layouts for the four types of machines covered.

In drawing up the standard tests, every endeavour was made to minimise the corrections which have to be applied to the test results to provide for the deviation between the test and the guarantee conditions. The corrections to power consumption for variations of inlet pressure and pressure ratio are therefore extremely simple, provided that these are within the standard deviation. No correction is applied to power consumption for variations of cooling water temperature within the 15° F. deviation from guarantee conditions permitted. Experiments at cooling water temperatures differing by 30° F. have shown that the difference between friction horse power due to the changes in oil temperature which are created through changes in water temperature —for which no correction can be made—have as much influence on the power consumption as the variation in the cooling water temperature. This standard is to be followed by a further standard which will deal with acceptance tests for aero-dynamic or turbo-type compressors and exhausters.

Copies of this standard may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1 (2s. 6d., post free).

DEARER GAS AT NOTTINGHAM

Consumers served by the Nottingham undertaking are to experience an increase in the price of gas. After careful investigation, the East Midlands Gas Board has ascertained that the present revenues of the undertaking are insufficient to balance outgoings. Representations to this effect were made by the Board to the Nottingham Corporation in February, and while the Corporation did not dispute the facts as presented, no alteration in gas prices was made. The Board now states : 'It is evident, therefor that prior to vesting date the undertaking was operating at a loss, and an increase would have been necessary irrespective of ownership.'

The new charges are as follows: First 130 therms per quarter, 10.5d. per therm; next 131-260, 10.0d.; next 261-520, 9.5d.; next 521-1,040, 9.0d.; all over 1,040, 8.5d. This relates to domestic and non-domestic consumers; prepayment consumers will pay a charge additional to the above of 1.5d. per therm in respect of hire of fittings and the additional cost of collection. Compared with the price of gas in 1939, the new prices show an increase of approximately 45.8%; moreover, Nottingham gas still compares favourably with that in other cities.

The Board emphasises that these increases are calculated to allow for all the costs of running the undertaking, but they are not sufficient to cover any future increases in costs which may arise. Nottingham is the first undertaking within the Board's area to receive an increase in the price of gas; announcements regarding certain other places will be made later.

COKE OVEN MANAGERS' YEAR BOOK

The *Year Book of the Coke Oven Managers' Association*, the 30th edition of which has now been published, has been prepared at a time when 'the coking industry is facing the possibility of further nationalisation. With the continued loyalty of its members the Association will remain a technical body endeavouring to serve the industry in all its branches, and hoping to play its part in the reconstruction and development schemes that are now being formulated.' With this background, as stated by the President, Mr. G. M. Nave, and the Hon. General Secretary, Mr. G. W. Chambers, there is recorded in the preface a close contact between the Association and the British Coking Industry Association, the National Coal Board, and the Iron and Steel Federation, which is resulting in developments in the field of education which are unique in the history of the industry and in which the Association will be taking an increasing part. The Year Book as usual forms a valuable record of the transactions of the Association and its three sections, which make up the bulk of the 300-page volume, and includes the questions set in the City and Guilds of London Institute examinations and extracts from the examiners' reports. The many technical problems presented in papers to the sections include the atmospheric corrosion of ferrous metals, gas cooling, the replacement rate for coke ovens, a modern method of preparing steel for painting by flame cleaning, factors influencing the life of silica coke oven batteries, the costing of steam and power, the carbonising industries after nationalisation, and blast furnace operation and the effect of coke quality. There is also an important review of technological education, in which the author, Mr. R. J. Sarjant, stresses the necessity for a broad atmosphere of experimental research as an integral part of scientific training at university level. The papers are followed in each case by the resultant discussion.

The remainder of the book gives the customary data on membership and officers of the Association, includes the report of the Council for 1947-48, and gives the Association's recently revised rules. There is also a memorandum outlining a university scholarship scheme for the granting of up to 10 scholarships this year, which was arrived at after joint discussions as mentioned by the President in his earlier preface to the book. A 13-page section lists the various officers and addresses of the National Coal Board's Carbonisation Branch, together with by-product coke oven plants in Great Britain, including their owners, addresses, plant, and capacity.

A Safety Conference, organised on behalf of the Association of British Chemical Manufacturers by the Royal Society for the Prevention of Accidents, is to be held at the Royal Hotel, Scarborough, from Oct. 7 to 9. It will be on the same lines as the Society's own Scarborough conferences and the previous chemical safety conference last year at Harrogate. The safe use of solvents, installation and maintenance of breathing apparatus, and use of electrical apparatus, are among the subjects for discussion. Full particulars can be obtained from the Royal Society's Industrial Safety Division, 131, Sloane Street, London, S.W.1.

BLAZING THE TRAIL WITH A TRAILER

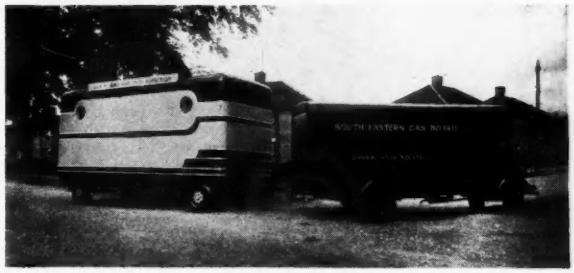
By W. V. CHAPMAN,

Gas Sales Manager, South Suburban Undertaking, Kent Suburban Division

THE old travelling showroom served its purpose 25 to 40 years ago, when manpower, traction, rentals of sites, were all sufficiently cheap to permit of relatively lavish use without excessive cost. Under today's conditions accommodation for such unwieldy structures can seldom be found where the service is most needed, and often more than one site, many miles apart, have to be served on the same day. Prescribed and scheduled letting times which are now customary practices on most large estates, call for Commando tactics consisting of vigorous and concerted action by trained personnel backed with mobility of display facilities and on the spot publicity, all of which must be capable of going into action without tedious formality and avoidable delay.

In the case of the South Suburban undertaking a trailer display unit has been specially designed to meet the majority of uses, and certainly all the major ones, of the three old methods of travelling showrooms, transportable showrooms, and sales coaches. The considerations leading to this decision were based on: (A) The maximum floor space for display and accommodation of callers; (B) Natural lighting without the orthodox window space; (C) Spacious headroom to enable truthful and realistic installation, improvement of ventilation and avoidance of excessive temperature in brilliant sunshine; (D) Original and modern exterior to avoid confusion of thought by the public with other vehicles while in transit; and (E) Low capital, repair, maintenance, running, insurance, licensing and other costs.

These essential requirements were all incorporated and resulted in the planning and design of the largest permissible sized trailer. Competitive quotations, based on ability to conform to and execute the high standard of workmanship and detail insisted upon, were accordingly obtained and authority was given by the South Eastern Gas Board for the contract to be placed with O. C. Lywood, Ltd., of North Hyde Road, Hayes, Middlesex, who are to be congratulated on the excellence of workmanship and sympathetic co-operation in producing an outstandingly original and thoroughly modern sales and service display unit.



The South Eastern Gas Board's new trailer-showroom on the road.

The roof lights consist of three opaque semi-transparent perspex roof laylights with electric centre lights—for use after dark—incorporated in the centre. The lighting is by means of traction batteries stored beneath the chassis. A transformer is incorporated to permit of mains lighting where available. The wall and ceiling treatment is by Formica and Traffolyte indestructible plastic; a sponge and duster is all that is necessary to keep them clean. The mottled blue rubber flooring is treated with non-slip compound.

The internal colour scheme is royal blue, silver, and cream. A clock, perpetual calendar, and ash-trays, &c., are all built-in. A double seated writing deck, incorporating a built-in refrigerator at the end, is equipped with flush recessed agreement container and recessed pen trays, all readily to hand. Pedestal seats and other storage accommodation is hinged to house felt fender mats for use in rear of cookers, &c., during transit. One attendant with the driver of the towing vehicle can prepare or pack up the complete unit in less than 15 minutes.

Each appliance is numbered by a small ivorine disc. Correspondingly numbered literature racks are built-in; thus any salesman extracting from the correspondingly numbered pigeon hole, obtains the appropriate literature without delay. The destination boards are constructed of special finish blockboard weathered at edges. They are reversible and can easily be cleaned off to permit of frequent change of slogans, &c. The external colour scheme is royal blue, French grey, and silver. Parking lights are built in at all four corners.

Supporting and adjustable metal struts are provided at each corner so as to permit of excessive loading by way of visitors while *in situ* without any movement being discernible. The towing bar is shrouded and fitted with leg supports to permit of use as an additional table during favourable weather. A valuable storage compartment is incorporated beneath this for stowing away miscellaneous gear such as collapsible steel ladder, folding aluminium steps, collapsible handled brooms and cleaning gear generally, &c. On the off-side in a spacious baggage compartment housed beneath the chassis are three separately numbered individual panniers permitting the use of one of each by the attendants on duty for the storage of personal effects such as clothing, &c. Entrance steps are fitted with ingeniously contrived and heavily constructed hinges spring-loaded in such a way as to permit of easy hoisting when closing up for the night, dismantling, preparing for departure, or an alternative scheme. Mechanical levelling devices are incorporated beneath the first tread so as to enable secure anchorage or bedding of steps on uneven ground surfaces.

Two glimpses of the interior. Cookers and washing machines are displayed at the rear end of the trailer. At the forward end a special display panel is fitted, forming a hot water section. The thickness of the wall panels is such that it is possible to fix heavy fitments at any position on the wall area.

While the innovation by no means provides a complete solution to the many baffling problems confronting those responsible for sales promotion matters generally, the difficulties of which are most definitely on the increase, it does constitute one important step in that direction.

Several equally important steps are under active consideration and indeed have already reached the stage of being incorporated in a comprehensive treatise dealing with sales and service problems as affecting district personnel in a practical and realistic manner, which, with the permission of the South Eastern Gas Board, it is hoped to present through the customary channels during the coming session.

THE STORY OF THE NORTHERN JUNIORS

AN EXAMPLE OF HOW TO HASTEN SLOWLY

As part of his Presidential Address to the Northern Junior Gas Association, Mr. Kirkwood outlined the history (which we summarise here) of the 'Juniors' in the Northern Area. It is only a year ago that the Association came into being as a body affiliated to the Junior Joint Council. Today the whole question of the future of the junior associations is being debated.

THE Auxiliary Section of the North of England Gas Managers' Association was formed in 1918. The Section was brought into being to meet a need for meetings at which more opportunity was available for free discussion between the younger members of our profession than was the case at the Senior Association meetings. Although the Section may have been looked upon in its original state as a Junior Association, it was not a self governing body, yet it had its own appointed officers and committee. It functioned without its own constitutional rules and regulations and was financially dependent upon the North of England Gas Managers' Association.

The affairs of the Section ran smoothly and to good effect for a number of years, without any apparent ripple on the surface, until the year 1933, when the Society of British Gas Industries introduced medal awards to the authors of papers presented by members of each of the recognised Junior Gas Associations. An article published in the *Gas Journal* at the time of this innovation named the Junior Gas Associations qualified to apply for the award. To our dismay the Auxiliary Section was omitted from the list. It was obvious this Section was not looked upon as a Junior Association in the official sense and, therefore, was not eligible to compete for the award. The Committee of the Section forthwith instructed their Secretary to communicate with the Secretary of the Society of British Gas Industries on the question of their non-inclusion in the medal award and was duly informed that the contents of his letter would be considered by the Council of the Society of British Gas Industries. The matter was eventually passed on to the Joint Council of the British Junior Gas Associations, and though the representatives of the affiliated Junior Gas Associations were generally agreeable to a proposition to include the Auxiliary Section in the award of a Silver Medal, it was suggested that, as a 'Junior Gas Association' it would be to our mutual advantage to become affiliated with the Joint Council.

A Wartime Deferment

The idea was considered, but it was decided to take no action in this way. After this decision there followed a further period of apparent inactivity until December, 1942, when the question was resuscitated. A committee meeting was held in March, 1943, when the formation of a separate Junior Gas Association was considered. It was generally agreed that, owing to war conditions, the time was inopportune, and the committee recommended that the matter be reviewed after the conclusion of hostilities.

Apparently the urge for self-government was uppermost in the thoughts of many of the members, and although accepting the decision of the committee to defer the formation of a Junior Gas Association, their efforts were turned towards improving the status of the Auxiliary Section and strengthening the relationship with the Senior Section of the Association.

At a committee meeting of the Auxiliary Section held in September, 1943, many suggestions were brought forward referring to improved status and a closer relationship with the seniors, and the following recommendations were later submitted to the committee of the Senior Association for consideration: (1) Change of representation on the education committee of the senior body; (2) continuation of the custom of the ruling chairman of the Auxiliary Section representing that Section on the senior committee; (3) financial recognition to be made to junior members of the Association who pass with credit the examinations of the Institution of Gas Engineers; (4) that the North of England Gas Managers' Association should award a medal each year to the author of a paper given before the Auxiliary Section if of sufficient merit to warrant the award.

Items 1, 2, and 3 received favourable consideration by the senior committee and an abstract from a letter received from the Secretary of that body referring to Item 4 states: 'The Committee feel that if the position was put to the Society of British Gas Industries it may be possible that they would be able to include the Auxiliary Section in their award. If this cannot be done the Committee will be quite willing to recommend the adoption of the suggestion.'

Following a further period of indecision, one sensed a general feeling of frustration on the subject of the medal award. This feeling of uncertainty revived the whole question of the desirability of forming a fully constituted Junior Gas Association affiliated to the Joint Council. Correspondence began to flow once again between our Secretary and the Hon. Secretary of the Joint Council which culminated in an examination of the whole question by the Executive Committee of the Joint Council in May, 1945, on a proposal to make provision for the junior members of the industry in the North of England. At the annual meeting of the Auxiliary Section, held by coincidence on the same day, reference was again made to affiliation with the Joint Council and the Committee of the Section was instructed to submit a report to the members at their next meeting.

A comprehensive report was presented by D. Yule, then Chairman of the Auxiliary Section, and the following abstract from this report will clarify the feelings of the committee at that time: 'Having sought information on the matter from all likely and helpful sources, the committee at the last three or more meetings considered the pros and cons and they now recommend that no action should be taken. They suggest it is preferable for the North of England Gas Managers' Association (incorporating the Auxiliary Section) to remain for the time being the sole body of its kind for the area.'

This report was presented to the meeting of the Auxiliary Section held in December, 1945, and the decision of the Committee, although accepted by a majority of members, did not quell the restlessness of a section of the Association's members.

In May of the following year the question, now becoming a 'perennial,' blossomed forth again: 'Is it desirable to form a Junior Gas Association in the North of England? Due to the increasing pressure of opinion, our Secretary was instructed again to contact the Secretary of the British Junior Gas Association concerning our position with regard to affiliation.

A long and detailed letter was received from the Secretary of the Joint Council in September, 1946, giving full details of the conditions necessary before affiliation could be entertained, and this letter was placed before the committee of the Auxiliary Section in November of that year for consideration. The outcome of this meeting was that the question of affiliation with the B.J.G.A. Joint Council should be deferred indefinitely.

The Final Step

The problem was not allowed to remain quiescent, and at the end of a further 12 months it was obvious that the feeling towards becoming an affiliated Junior Gas Association was greater than ever, and at a meeting held in September, 1947, enthusiastic support was expressed towards affiliation with the B.J.G.A. Joint Council and the committee *once again* was asked to prepare a report in readiness for a meeting to be held in December, 1947. In January, 1948, formal application for affiliation with the Joint Council was made for submission to the next executive committee meeting, and our Secretary informed the Secretary of the Senior Association of this decision. The committee of the Senior body at their meeting held in January, 1948, gave this application for affiliation careful consideration and generously sanctioned the necessary expenditure in connection with affiliation fees, &c. At the annual general meeting of the Auxiliary Section, held at Newcastle in June, 1948, a resolution was passed requesting the committee to proceed with the formation of a separate Junior Gas Association. Formal application for affiliation to the British Junior Gas Associations' Joint Council was made in person by the Secretary of the Auxiliary Section when he attended the Council Meeting of the B.J.G.A. Joint Council at Sheffield on Sept. 24, 1948. On the same day the first general meeting of the Northern Junior Gas Association was held at Sunderland, and towards the end of this meeting a telegram was received from Sheffield stating the application for affiliation had been accepted.

It may be mentioned that Mr. L. M. Weldon, in carrying out the duties of his office as Secretary of the new Association, invited the members of the North of England Gas Managers' Association to become founder members of our Association. One reply to this invitation was as follows: 'Replying to yours of Oct. 29 I am afraid at my age—84—I cannot undertake to become a member of the Northern Junior Gas Association.'

Meetings of the Finance and Membership Committees of the Council of the Institution of Gas Engineers provisionally arranged for Sept. 13, have been cancelled. The next meeting of the Council and Committees of the Institution will be held at 1, Grosvenor Place, on Oct. 4, instead of Oct. 10 and 11, as provisionally arranged.

A SURVEY OF FUEL EDUCATION AND RESEARCH*

By D. T. A. TOWNEND, D.Sc., Ph.D., D.I.C., Hon.M.Inst.Gas E.

(Continued from p. 377)

IN actual research projects a great demand is made on the various classes of scientists. The research engineer needs to call in the aerodynamicist for the information on the flow of gases. The physicist contributes not only to the physical aspects of combustion but also to the provision of accurate instruments, such as the modern continuous infra-red instrument for the analysis of flue gases. The chemist must be supported by the petrologist to supplement plain chemical analysis of fuels by physical examination. Finally, the large number of variables which must be studied in boiler trials, makes a severe demand on the statistician, who is required to plan the investigations so that they yield the maximum information for the minimum effort as well as to ensure that the trials lead to valid conclusions free from subjective interpretation.

So much for the boiler trial itself. If advances are to be rapid, these trials must be supported by a continuous chain of smaller-scale investigations leading through work on combustion pots—or models of fuel beds—to kinetics and other fundamental studies such as those on heat transfer.

With shell boilers the most immediate problems are: (i) the quantitative determination of the effects of the fuel characteristics (volatile and ash contents, caking properties, grading and moisture) on the performance of both the fuel-burning and the heat-using components; (ii) the estimation of the best distribution of heat-emitting and heat-receiving surfaces within the boiler, and (iii) the quantitative effect of operating conditions on the performance of the unit. These problems are being attacked by full-scale tests in the field, by full-scale experiments at research establishments, and by widespread laboratory and small-scale investigations.

Full Scale Boiler Experiments

Much of the field work already carried out has either been reported to the Institute or published elsewhere. Valuable practical material has been issued to industry under the aegis of the Fuel Efficiency Committee of the Ministry of Fuel and Power. For full-scale experiments at B.C.U.R.A. an Economic boiler has been installed whose entire output is condensed under the full control of the operators. The boiler is equipped with numerous instruments, and in consequence the boiler trials have a high degree of reliability and require a minimum of time. This boiler is, in effect, a large calorimeter. It is at present being used to determine the effect which coal characteristics exert on boiler performance.

The whole gamut of scientific activity, to which I have already referred, is available to support, to extend and to assist in the interpretation of the results of these boiler trials.

Of equal importance is the guidance afforded to this investigation by the well-known R/16 Committee. Here industry is able to ensure that the practical aspects of shell boilers and their operation are kept well in the foreground. Another Committee, the Boiler Availability Committee, is a unique example of collaboration between research—whether in the laboratory or on the full scale—and industry. This Committee has long been concerned with the avoidance of forced outages of water-tube boiler plant. The work gives two striking examples of the advantages accruing from team investigations. The first of these is the development of the dewpoint meter, the essential tool in the field of investigations of deposit and corrosion problems. This instrument is the outcome of a long and difficult laboratory investigation by chemists and physicists.

While this instrument was being developed, the kineticist was studying in the laboratory the complicated reactions taking place in the combustion process; it was found that smoke particles in the gas stream had an important influence on these reactions, and reduced the rate of build-up of deposits. This finding has since been confirmed in field trials on full-scale boilers.

Adequate Instrumentation

The success of all this work is dependent also upon adequate instrumentation. Instruments must as a first necessity provide an accurate estimate of what they are intended to measure. In addition, simplicity, robustness and reliability are necessary. Modern knowledge of servo-mechanisms has resulted in an ever-increasing use of automatic control.

In addition to these findings relevant to present practice, we must not overlook the newer trends in the design of combustion appliances. The cyclone furnace, which, it is claimed, reduces deposits and fly-ash, is receiving attention. Work is being carried out also on concentrated combustion, with a view to reducing the volume of the appliance. In the down-jet furnace 500,000 B.Th.U./cu.ft. have been released in comparison with the conventional release of 100,000 B.Th.U./cu.ft. in the shell boiler. The jet-propulsion gas turbine demands an energy release equivalent to 6 million B.Th.U./cu.ft. per atmosphere, and town gas/air burners have been demonstrated which give over 100 mill. B.Th.U./cu.ft. Possible heat releases with oxygen enrichment defy speculation.

All these processes present grave and urgent problems for the ceramicist and the metallurgist. The application of these high rates of heat release is at present restricted to the uses mentioned above. There will no doubt be further developments, but it would be unwise to forecast a general move in this direction in the near future; it will call for much effort on the part of research teams. It is interesting to note in passing that a number of the developments employing concentrated combustion are largely the outcome of the research on incandescent surface combustion by Bone, a chemist.

The Gas Turbine

Turning now to prime movers, the gas turbine has proved to be one of the most spectacular developments of recent times, and much seems to be expected of it in the future. Its peculiar suitability for use as an aircraft engine should not be taken as an indication that it will necessarily displace other types of prime mover in other fields. It would appear that the oil-fired gas turbine offers good prospects for transport, but for stationary applications of the gas turbine in this country the fuel should probably be coal. The most fruitful applications will probably be those employing inferior coals, cheaper than those normally marketed. The importance of this development is reflected in the setting-up of a research programme on a national scale.

Recently the possibility has been suggested of combining solid-fuel-fired gas-turbine and steam plant in such a way as to secure the advantages of both.

It is well known that temperature and pressure govern the rate of a chemical reaction, and one way of intensifying the combustion process is to increase the pressure under which it takes place. Fundamental kinetics show that the rate of combustion may be nearly proportional to the pressure. In a pressure-combustion boiler much of the heat would be used for generating steam and the remainder would be available in the flue gas for operating gas turbines at a pressure and temperature well within the range of present techniques.

Domestic Heating

I will now refer briefly to the research problems that arise in domestic heating.

The homely English hearth is a notoriously inefficient source of heat, and the combination of a restricted fuel supply at high cost with the need for higher standards has stimulated efforts to develop improved methods of domestic heating. The problem of domestic heating involves combustion problems allied to those of other fields of fuel research, but is further complicated by the human reactions which play such a large part in the acceptance of any particular method of heating and cooking. It is natural, therefore, that the type of personnel employed in research on domestic heating should vary from those engaged on physiological and medical studies in connection with heating and ventilation to those concerned with architectural house insulation and construction. Thus operational research is of increasing importance also in the investigation of methods of heating, and such work calls for special qualities in scientific personnel.

The search for greatly increased fuel economy and better heating standards has recently focused attention on the more efficient appliances such as stoves and boilers; and here the efforts of the Americans and ourselves to solve the problem of burning bituminous coal smokelessly in such appliances are of particular interest. In all these aspects of the burning of solid fuel, smoke emission must not be overlooked. Much has already been said of its evil effects, its inherent destructiveness, its danger to health, and the fuel waste which it implies. Let it suffice for me to say on this occasion that the avoidance of smoke production is a major problem of investigation in current fuel research.

I have discussed researches into the use of fuels for specific purposes. I must now consider the position of the fuel industries as a whole, and, in particular, draw attention to the part played in

* Presidential Address delivered at the Twenty-Second Annual Corporate Meeting of the Institute of Fuel, April 28, 1949.

their economy by employing the fuel substances as a source of chemical raw materials.

The petroleum industry was early forced to develop a means of marketing its unwanted fuel fractions, of which large quantities were unavoidably produced at the refineries. Intensive team work on a large scale, conducted both at the large refineries and in research establishments, has resulted in a transformation of the whole industry. Chemical engineers have brought physical fractionation of the oil to a high pitch of efficiency; physical and organic chemists have together made possible the catalytic interconversion of hydrocarbons, and the manufacture of organic compounds containing oxygen and nitrogen in addition; chemical engineers have in turn translated these processes to the industrial scale. By a combination of these techniques, fuels suited to particular applications can be produced at will in the required quantities (much of the aviation petrol used during the war was synthetic in this sense). Fractions less suited to fuel applications, such as distillation residues and very low-boiling hydrocarbons, can be worked into a wide range of by-products—for example, detergents, insecticides and raw materials for plastics. The industry has benefited in two ways; the chemical products exercise an important influence on the economics of the industry, and the almost unlimited possibility of inter-conversion makes for flexibility and renders the industry comparatively independent of changes in its consumers.

Complexity of Raw Materials

The achievements of petroleum chemists have been assisted by the comparative simplicity of their raw material. Coal chemists, on the other hand, have had to contend with a complex and intractable raw material of which the constitution is still unknown. Furthermore, until recently the coal industry has not been faced with an urgent need to develop a chemical branch, and in consequence comparatively little research effort has been applied to the problem. As a result, chemical by-products have been confined to the small quantities produced from tar, the total contribution in the shape of revenue being unimportant.

The position is now quite different. If a comparatively small tonnage of less attractive fuel, such as coals of high mineral content and slurries, could be converted to chemical products of high value, the price of the main output could be correspondingly reduced with great advantage to industry in general and to the national economy. Furthermore, the time may come when other sources of energy such as tides and nuclear piles may be in a position to accept (or even compete for) a proportion of the fuel market; with a strong chemical outlet, the coal industry might be able to profit (by prolongation of its resources) rather than lose by such a development. Clearly, therefore, there are now strong incentives to intensified chemical research on the coal substance.

It is here necessary to discuss desirable developments rather than actual achievements. The complexity of coal may perhaps be turned to advantage if its chemical breakdown can be achieved in gradual steps, and stopped where desired. In this way it may be possible to obtain good yields of substances which will very likely be both valuable and difficult to synthesise from petroleum. The coal chemist has good foundations on which to build, laid by such schools as those of Bone, Wheeler, Lowry of the Carnegie Institute in the U.S.A., Seyler, and Bangham. The recent advances in our understanding of the colloidal nature of coal may open up two possibilities which will meet essential needs of the organic chemist: (1) the preparation of pure, or at least reproducible, coal fractions; and (2) the rendering of a large proportion of the material accessible to chemical reagents. It is as yet too early to forecast the outcome of these developments.

The Institute as a Forum

I have naturally not attempted to cover too wide a field in fuel technology. Time does not permit it, and in any case, the examples I have given show the need for teams of scientists to be engaged on each of the major problems in fuel technology. These teams are to be found in several organisations throughout the country.

There is no need for me to give a list of these organisations—for they will be familiar to you—but I would like to mention the range covered—from the Fuel Research Station of the Department of Scientific and Industrial Research, through the research associations to the laboratories of industrial firms and of the National Coal Board. Apart from the more direct and informal contacts between the workers from these different organisations, there is a common forum in the Institute of Fuel for the expression and exchange of views. As I have already emphasised, the Institute also enables these men to maintain close contact with the requirements of industry both in the technical and the administrative spheres. Conversely, the industrialist is made aware of the advances achieved by his scientific confrères.

This may be a convenient point at which to emphasise my belief in the necessity for another type of two-way traffic in a very real sense; that is, two-way traffic effected by exchange of individuals from time to time between the research and industrial fields. I am firmly convinced of the necessity of such exchanges if we are to secure the fresh and vigorous attack which we must essentially continue in our problems.

In conclusion, we welcome the recent formation, under the Chairmanship of Sir Alfred Egerton, of the Scientific Advisory Committee to the Ministry of Fuel and Power; and the appointment of Dr. Roxbee Cox as the Ministry's Chief Scientist. I would like to express the hope that this Committee will make the fullest use of the facilities offered by the Institute both in the encouragement of scientific endeavour in fuel technology and in the wide class of members whose experience forms the backbone of the Institute of Fuel.

CENSUS OF PRODUCTION FOR 1949

It has now been decided, after consultation with the Census of Production Advisory Committee, that information shall be collected in less detail for the Census of Production for the year 1949 than that collected for the year 1948.

For 1949, the main change is dispensing with detailed particulars of the sales of goods made or of materials purchased. The output and materials sections are being simplified as far as possible and for most trades only one total value for output and for materials will be required; in certain cases, one or two other totals which were asked for in 1948 (*e.g.*, duty paid in the year) will be repeated so as to allow net output to be calculated. Only one total figure will be required for work given out and the sections on payments for services rendered by other firms (*e.g.*, advertising, research) and an analysis of sales will be omitted.

Although these simplifications will be made for 1949, details similar to those asked for in 1948, particularly for the sections on materials purchased, and output will be required at future censuses. Firms are therefore advised to maintain the records of their business which enabled them to complete the census forms for 1948.

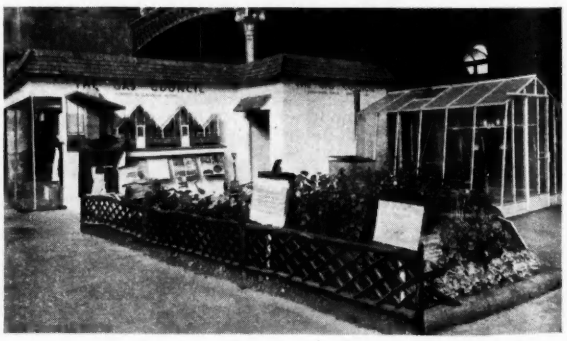
The statutory forms to be completed for the Census of Production for 1949 will be issued to all firms concerned on Jan. 1, 1950.

INDUSTRIAL FURNACE CONSTRUCTION

We have received from Professor J. Körting, of the Karlsruhe Gas Institute, a copy of a book which he has written on the construction and running of industrial furnaces.* Furnace construction as a separate branch of technical study is comparatively recent in Germany, and the only college where the work has been tackled seriously as a scientific subject is the Karlsruhe Institute, where a professorship was established shortly before the outbreak of World War I. Apart from this the subject is taught as a supplement to courses of technical instruction, with special emphasis on practical requirements. The fundamentals of heat transfer and so on, and the basic elements of oven building construction have been investigated to a small extent only. As a consequence literature on the subject is limited in range, is marked by many gaps, and lacks detail.

There is definitely a great need for a concise compilation setting out clearly the most important considerations in furnace construction and use; and Professor Körting's book is opportune. The volume runs to 150 pages, with 38 diagrams and 16 tables. There is a useful bibliography and the book is well indexed. It is to be hoped that the work will be a forerunner to more extended treatment when times become more favourable.

* Published by Verlag and Druck G. Braun, Karlsruhe.



Gas Council photo

A general view of the Gas Council exhibit at the National Gardens Show at Olympia, showing the gas-heated greenhouse, the use of by-products in the garden, and the demonstration kitchen.

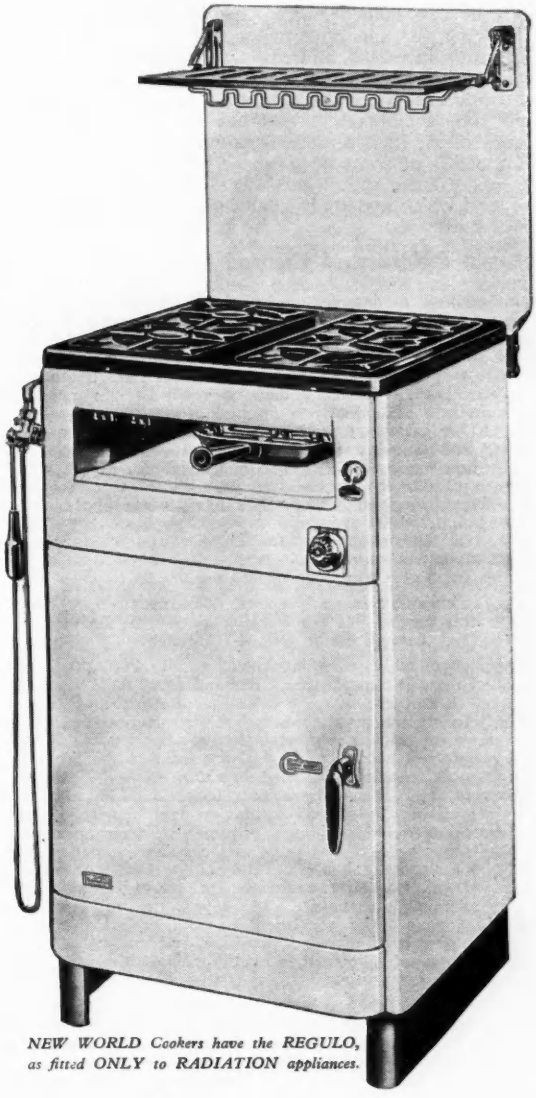
NEW WORLD for me

Here are some advertisements from the Radiation national advertising campaign now being launched.

Since 1923 over 2,000,000 housewives have been satisfied users of Radiation NEW WORLD Gas Cookers. New generations will be following their good example and, by deciding that "it's a NEW WORLD for me", will build still bigger sales for gas and for NEW WORLD Gas Cookers.

The Cooker shown is the No. 1640 in all-cream finish with fixed Backplate and folding Platerack — one of the NEW WORLD No. 1430 series.

Supplies of the NEW WORLD Gas Match are now available for fitting to all types of Radiation Cookers.



NEW WORLD Cookers have the REGULO, as fitted ONLY to RADIATION appliances.

PRODUCT OF Radiation Ltd

Radiation House, Aston, Birmingham, 6.
Showrooms & London Offices: 7 & 8 Stratford Place, W.1 (Telephone: Mayfair 6462)

T36

NEW WORLD NEW WORLD NEW WORLD

AN ANALYSIS OF THE DOMESTIC LOAD

FROM A REPORT OF THE INSTITUTION OF GAS ENGINEERS AT THE CONGRESS OF THE INTERNATIONAL GAS UNION

Mr. Stirling Everard, M.B.E. who presented the Report.

ONE of the most important of the long-term results of the war upon the British gas industry has been the major increase in the cost of production, due to the very much higher cost of coal, the raised level of wages and the corresponding advance in the cost of plant. This has resulted in a sharp rise in the price of gas to the consumer, and, since a comparable increase in electricity prices has, generally speaking, been delayed, the pre-war advantage of gas in this respect was, in many districts, temporarily lost. The effect was felt particularly in new housing, where the installation was not already in being, for apparatus prices and the cost of fixing have also greatly increased, and costs are now closely studied both by housing authorities and householders. These changed conditions suggested careful consideration in the planning of commercial policy, and it has been found desirable to take stock of the level of actual and potential load among the various classes of domestic consumer, and to examine the effect of seasonal demand, which varies with each type of apparatus, and which materially affects the cost of supply.

The Changed Incidence of Demand

The domestic load of any gas undertaking is built up of three separate classes of business. Firstly there are a large number of small households of the labouring classes, artisans and clerical workers generally, though not exclusively, supplied through prepayment meters. For convenience this will be referred to as the prepayment load. Secondly there is a smaller number of middle-class homes, and finally a limited group of well-to-do consumers. The last two groups are charged for gas by quarterly account, and may be termed credit consumers. Each of these three groups has its own demand characteristics, which will vary largely, according to the relative proportion of base load (cooking, refrigeration, and water heating) to seasonal load (space heating and, where it is still provided, lighting), but the three groups tend to merge into one another and there is no clear-cut line of demarcation.

In the make-up of the domestic load of any undertaking the proportion of consumers in each group will depend upon the nature of the area served, but numerically the prepayment group will always exceed the two credit groups combined.

The social changes which were introduced by the war have had a marked effect upon the incidence of demand from these groups of consumers. Before the war the labouring and artisan classes had commonly to practise great economy in their domestic expenditure, the more so in areas affected by unemployment. As a result they were not able to make full use even of the limited range of apparatus normally installed in their homes. Today full employment and increased wages, together with altered cooking habits arising from food rationing, have resulted in a noticeably greater demand, although, through shortage of supplies and other causes, there has been no appreciable change in apparatus. This rise has taken place despite the increased price of gas since 1937 of, say, 80%, and may amount to as much as 25% in the average household. Moreover, the increase in demand would appear to be permanent so long as full employment and the present level of wages continue, and the use of gas might well be increased still further by the greater development of such loads as water heating.

Among the middle classes and well-to-do the picture is different. The very great increase in taxation on the larger incomes, together with the increase in the price of gas, have had the effect of emphasising the need for economy, while the shortage of domestic help reduces demand, so that at the lower end of the scale consumption remains at much the same level as pre-war, while further up it tends to diminish.

One of the results of these changes has been to make the running of many large houses uneconomic, and, particularly in urban areas, these have been converted into flats. This tendency was already apparent before the war. The change reduces the consumption per consumer, but very often increases the consumption of the building. New housing is confined at present to the smaller type either in the form of detached or semi-detached houses or large or small blocks of flats, and much of the work is carried out for local authorities.

In addition to the straightforward domestic business there are certain other types of business allied to it which tend to develop, and which will be referred to here as the quasi-domestic load. This load includes central services in blocks of flats and supply to hotels, boarding houses, and catering establishments, the latter including restaurants, fish friers, snack bars, coffee shops, and works and office canteens. This last group is, to some extent, a transfer from the domestic cooking business, either voluntarily, through the consumer taking more meals out in order to make the rations go further or to avoid domestic labour, or involuntarily, through the circumstances of employment.

In short the outcome of the social changes of the day has been an alteration in the characteristics and requirements of the domestic and quasi-domestic business as a whole, giving fresh opportunities for development, particularly in the smaller type of home and in the catering field. But this can only be achieved if the price, both of gas and of apparatus, is attractive. Nothing would be more likely to prove fatal to success than an easy assumption that, because nine out of 10 households have hitherto shown a preference for gas cooking, they will continue, without tangible advantage, to do so. At this point, therefore, it is desirable to look in some detail into the commercial problems involved.

The Composition of the Domestic Load

The domestic demand is built up of a number of different loads collectively met by gas, but varying greatly in their seasonal, daily and hourly incidence. These can broadly be grouped into the base loads (cooking, refrigeration, and water heating) and the seasonal loads (space heating and lighting).

In any single home the base load will change from day to day with the habits and requirements of the household: some days there will be more cooking than on others; sometimes the family will go out for the day; one day will be set aside for the weekly wash, and so on, but, absence for the annual holiday excepted, the load will be relatively constant from month to month, and although there will be cold weather peaks the load will not fall away in hot weather to any appreciable extent. Moreover the aggregate load taken by a large group of consumers will tend to show proportionately lower daily variations due to the effect of diversity. The seasonal loads, on the other hand, will not only show daily variations in the case of individual consumers, but will also show major fluctuations in the total demand according to the time of the year, and these major fluctuations will not be lessened by aggregation. Cold weather and dark evenings are cold and dark for everyone. Space heating will closely follow the atmospheric temperature, a cold spell and indeed a single cold day producing a corresponding increase in gas output, although there will be a short time lag, while lighting (a load no longer sought, but still in being to a great extent in the older districts) will reflect the number of hours of darkness and will show daily variations corresponding to fog and overcast winter skies.

The amount of use to which gas is put for each or any of the five principal functions will depend upon the domestic customs and income of the household; and the characteristics of the load, which influence the cost of production, will be determined by this. The number of persons in the household will directly affect the demand in respect of both cooking and water heating, although, as the size of the family increases the average consumption *per person* will decrease. Two-person households require less gas than that used by two people living separately, and each additional member of the family beyond two adds proportionately less gas to the total demand.

The refrigeration load varies for similar sized appliances in different households, the amount of usage being the controlling factor, and the tendency being towards a summer peak. It is found, moreover, that in poorer homes where these appliances are installed they are frequently turned off during the winter months, and are sometimes not used at all.

The potential space heating and lighting loads are more closely related to the number of rooms in the dwelling than to the number of persons in the household, and consequently the larger

the number of persons in a given size of dwelling the less pronounced is the liability to seasonal variation in the total load, for the seasonal component will be to a greater and greater extent exceeded by the base load.

The seasonal loads show a wider range of variation due to the way of life of the household than is the case with the base loads. For example, both the habits of early rising and of going to bed late will be reflected in increased consumption for lighting and heating. Where the majority of the members of a family are out at work all day the demand for space heating will be materially lower than is the case in more leisured homes, while young children in the household tend to increase the consumption for this purpose. The 'luxury' flat produces the maximum space heating demand per person, while in those households where the kitchen is customarily used as the living-room the demand for separate space heating is at the minimum, for there the cooker will generally be found fully to meet the need.

The capacity of the installed apparatus has, necessarily, an effect upon the consumption, but in general it may be assumed that a household of a given size has equipment appropriate to its demands. Where this is not the case, as may happen from a number of causes, consumption figures will be affected. Thus, two persons living in a large house equipped for eight or 10 will use more gas than two persons living in a house or flat equipped for two, while, where there is serious overcrowding, as frequently happened in the immediate post-war years, the consumption will be lower than the number of persons in the household would suggest.

The total gas consumption and the seasonal variations in the demand of any given household will be determined by:—

(i) The uses for which gas is required, which govern the type of equipment installed.
(ii) The number of persons expected to comprise the household, which governs the capacity of the cooking, refrigeration, and water heating equipment installed.
(iii) The number, size and use of rooms in the dwelling, which govern the capacity of the space heating and lighting equipment installed.
(iv) The number of persons in fact comprising the household, and the income and customs of the household, which govern the actual use for base-load and lighting purposes, and the potential space heating demand.
(v) The climatic conditions and atmospheric temperature which govern the actual use for space heating purposes, and affect to some small extent the use for all purposes.

With these variable factors determining the level of consumption, it will be seen that to attempt to think in terms of the 'average domestic consumer' is highly misleading. Consumers must be aggregated into groups having common conditions of supply before it is possible to assess the trends affecting commercial policy.

Load Characteristics

If all classes of business, if all types of apparatus, showed identical seasonal trends in demand in all circumstances, then there would be little to be gained from detailed load analysis. The cost of gas production would be the same for all, and every therm would have the same value. Unfortunately this is not so, as has already been seen. The demand derived from one type of appliance is relatively steady throughout the year, so that a proportion of the production plant is employed more or less continuously making gas for its daily use. The demand from another type of appliance varies with the seasons, and may disappear altogether at certain periods, so that production plant required to meet that load is idle for much of the year. In the latter case the overheads must be recovered on a reduced output, and are therefore higher, possibly substantially higher, per therm.

It may, of course, be possible to develop summer loads which will partially balance winter loads, and thus go a little way towards spreading overheads, but this can only be done in favourable circumstances, and generally speaking on a small scale relative to the total load, for example in the case of holiday resorts. Residential business, wherever situated, shows much the same characteristics, and the inescapable fact remains that the overall demand for heat is very much larger in the winter than is the case in the summer; and, since it fluctuates very much more in certain loads than in others, the cost of gas production, when overhead charges are included, also varies according to the use for which the gas is required.

When the average price of gas supplied for all domestic purposes is low in relation to that of other fuels there is no reason to feel serious concern at the development of seasonal peaks, provided that the plant is there to meet them; but where such conditions do not apply it is not out of place to take load characteristics into account in setting prices. If the base load in fact costs substantially less to produce than the seasonal it may be unwise to continue to calculate the charge to the consumer on the average cost of the two combined, but differentiation should be effected by a careful tariff structure (which should not involve dual metering), and care must be taken not to penalise the great proportion of consumers without a serious space heating demand. A difference in summer and winter prices is sometimes considered a suitable method, but this, although it may not affect the size of the annual bill, puts an added strain on the cost of housekeeping in the winter months, and, reprehensible as it may appear, the average consumer does not in practice put aside money saved in the summer to meet winter expenditure.

The sheet anchor of the gas industry in Britain is the domestic cooking load, and its retention is essential. In character it is steady, although in common with all loads, it shows a tendency to follow temperature changes.

Working-Class Homes (the Prepayment Load)

Although the prepayment load represents the greatest single demand for gas, it was, before the war, restricted in scope by two things, the available income of the consumers, and the type of dwellings in which they live. The limit of spending power has now been raised, with a consequent increase in demand. Housing conditions, however, cannot be changed overnight, and as a consequence there still remains a formidable gap between the amount of gas which the consumer would be prepared to take to obtain the comfort and convenience desired in the home, and the amount of gas which he can in fact take on account of limited facilities. The filling of this gap in the future, as re-housing progresses, offers to the gas industry a substantial increase in business.

In the analysis of the load by the Gas Light and Coke Company it has been found desirable to distinguish between consumers living on county council and borough council estates on the one hand, and 'free' consumers on the other. A 'free' consumer for this purpose is the consumer who owns his house or is buying it on instalments, or who rents it from a private landlord.

Council estates, which have been built out of public funds for the express purpose of providing homes for the working classes, are commonly designed to make the best use of modern fuel service; moreover, at present they are to a very great extent allotted to families with children. The 'free' consumer group, on the other hand, with a high proportion of small households, may have to pay higher rents, or the alternative of purchase instalments, while their dwellings include many old properties, such as large houses cheaply converted into flats, in which fuel supply has been a secondary consideration, and the facilities are very restricted. Furthermore, the 'free' group includes certain consumers, such as pensioners, whose incomes even today are inadequate to provide the standard of comfort elsewhere considered necessary. The average consumption of the Council consumers as a whole is, from these causes, higher than the average consumption of the 'free' consumers, the figures for the Gas Light and Coke Company's area being 162 and 124 therms per annum respectively.

The problem of the very poor is an economic one. In the case of the results of the Company at present under review 21% of the consumers using on average 1 therm per week or less are old-age pensioners, living alone, and a further 9% are other classes of persons living alone. Now a consumption of 1 therm per week is not, generally speaking, adequate to provide the normal amount of comfort for a single person who is ordinarily at home, particularly as this must in many cases cover all cooking and water heating and sometimes space heating and lighting. The consumption in such cases will only be increased by a reduction in the price of gas; but on a cost basis these very small consumers are the most expensive to supply. Through the working of the usual flat-rate method of charge they already tend to be supplied at below cost. Therefore, it is clear that the solution of the problem is a social one, and that the gas undertaking cannot be expected to reduce the charge to such consumers at the expense of others. Rather, the answer lies in the establishment of old people's hostels, a project already under way in certain areas.

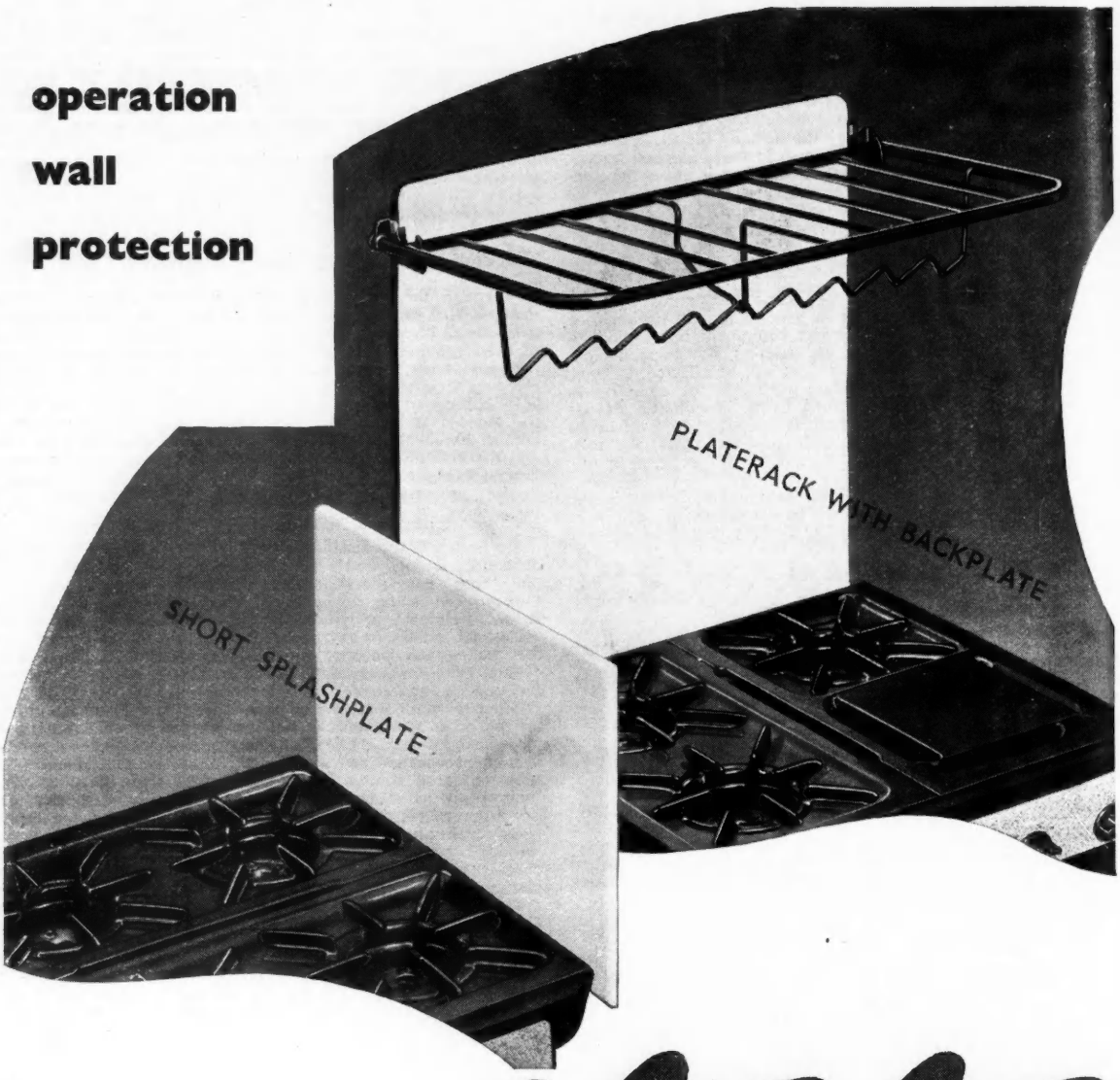
There is another type of very low consumption—namely, that resulting where gas is a secondary fuel, the main service being provided by coal or electricity. This is, of course, a different problem, to be met by encouraging a change-over to gas for all purposes.

A more widespread factor in perpetuating a low demand for gas is the unsatisfactory housing conditions of a very large number of the 'free' consumers. Neither the standard of design of the working-class housing of the 19th century nor the facilities offered by the conversion of large houses to working-class flats or tenements by private owners permits any increase in the gas installation beyond the barest minimum. There are innumerable dwellings in which the only apparatus possible is a cooker, and this installed in some improvised position which hampers both utilisation and upkeep. In such cases it is useless to talk of increasing the load; the consumer, often anxious to make fuller use of gas, is prevented from so doing by the structure of the home.

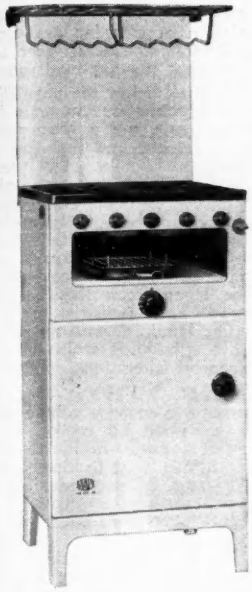
operation

wall

protection



MAIN 177 GAS



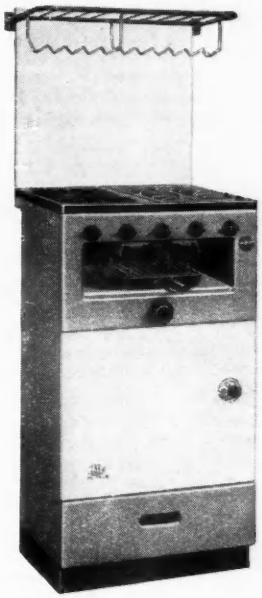
177 with platerack and backplate; 4 boiling burner hotplate; 16″ oven; cast iron legs; cream finish.

177 with short splashplate; 3 boiling burner hotplate; 16″ oven; tubular legs; cream finish.

CHOICE OF 177 FEATURES

Platerack and backplate, or short splashplate . . . Hinged cover with shelf . . . Oven heights: 14″ or 16″. (Portal, 14″ only) . . . Hotplates with 3 or 4 boiling burners and a high-speed grill . . . Cast iron legs, plinth base or tubular legs . . . finishes are in dapple/white, or cream/black.

Protection for the kitchen walls is afforded by either a short splashplate or a backplate with single type platerack . . . both are interchangeable features on the 177 series . . . finishes are in white (standard) or cream (deluxe) vitreous enamel . . . the platerack is of tubular construction finished in black . . . also in chromium with the deluxe model.



177 with platerack and backplate; 4 boiling burner hotplate; 14″ oven; plinth base; dapple/white finish.

177 with short splashplate; 3 boiling burner hotplate; 16″ oven; cast iron legs; dapple/white finish.

COOKER

with a choice of interchangeable features

R. & A. MAIN LIMITED · LONDON and FALKIRK

A careful survey has been made in several areas of the effect of slum clearance and rebuilding. In each case a 'condemned' area has been compared with an adjacent area of equal extent occupied by new council housing, and where gas has retained the base load an increase in consumption has been achieved. This is of considerable moment, for the consumers in both the old and new dwellings are of the same social grouping and income; in fact today's slum dwellers are tomorrow's council tenants.

A typical case from the East End of London exemplifies the point. Three-person families in a certain street in a slum area, with very poor and old housing, averaged 111 therms a year, the only gas apparatus being a black cooker. Families of similar size, and drawn from similar, now demolished, streets in the same neighbourhood, are housed in a modern council block of flats, and averaged 156 therms a year, the equipment being an enamelled cooker, and either a single-point water heater or a wash-copper. Thus an increase of some 37% has been effected simply through the better facilities offered by up-to-date housing, and this despite a slight reduction in the consumption rate of the modern cooker compared with the older design in the earlier houses.

Where the old property includes the lighting load, which is necessarily lost in new housing, the net gain may be less. To quote another example, this time in one of the western districts of Greater London: three-person families of somewhat higher income than the last group, but living in old, dilapidated five- and six-room houses equipped with cooker and lighting, averaged 178 therms a year, while similar families in a new block of council flats, each with a modern cooker, water heater and fire, averaged 192 therms a year. In this case the lighting load was lost, but the loss was more than made up by the new loads gained, the increase being of the order of 8%.

From contact with consumers in the course of market research work it can be said without question that housing conditions play an exceedingly big part in determining the level of demand for gas. A modern home is pleasant to be in, and the housewife finds an interest in cooking and keeping the place clean and tidy. The same housewife, unless made of very determined stuff, becomes disheartened in dark dilapidated surroundings, where dust and dirt cannot be kept under control. As a result the minimum of cooking, the minimum of cleaning are done, and there is no question of a comfortable fireside to keep the family at home in the evening. Inevitably the gas load suffers.

In the true slum building, which has sunk below the possibility of improvement, there is nothing to be done but to wait for it to be swept away in a clearance scheme, but a great many working-class homes fall between the derelict and the modern. They are sound structurally, and likely to last for many years, but they were designed and built in the age of the coal range. A gas cooker and perhaps a copper have been fixed, but nothing else. In the majority of such cases comprehensive, up-to-date gas equipment could be provided if the landlord or the tenant were prepared to meet the cost of extending the carcass and fixing the apparatus; but for the most part it is this cost which prevents the job being done. The tenant feels that he may before long move elsewhere, either to a new district or to a better house in the same district. The landlord, with restriction of rents, has no incentive to improve a building which he can only profitably let if he avoids expensive alterations. That is one of today's problems.

In the prepayment field the consumer will spend a considerable amount of his greatly increased wages upon his weekly living expenses; he no longer stints himself for gas in his existing apparatus; but he does not often see his way to finding the capital sum necessary to extend the range of apparatus in his home at present prices and fixing costs, even where some form of easy payment is available. It is the initial sum which is the stumbling-block. Thus, the undertaking is in a dilemma. There is a tremendous additional load to be developed, and the consumer is prepared and even anxious to make a wider use of gas; but to effect this more apparatus must be fixed, and this entails an extra cost which the consumer will not pay and the undertaking has not been willing to forego

(*To be continued*)

GAS UNDERTAKINGS' RESULTS

Malta and Mediterranean

The revenue account of the Malta and Mediterranean Gas Company for the year ended Mar. 31 shows a balance of £7,141 carried to profit and loss account, against £12,453 for the previous year. Gas sales increased from £47,736 to £51,910, rentals of meters and stoves from £5,525 to £5,729, and income from residuals, less expenses, from £14,517 to £18,503. Manufacture and distribution cost £59,564, against £47,064 for the previous year, and administration increased from £8,254 to £9,430. Final dividends were declared at the annual meeting on July 29 making totals of 7% on the first preference stock, 7½% on the second preference stock, and 10%, free of tax, on the ordinary stock, leaving a balance of £6,904 to be carried forward against £6,617 brought in.

Montevideo Gas and Dry Dock

Presiding at the 77th annual meeting of the Montevideo Gas and Dry Dock Company in London on Aug. 8, Mr. Frank H. Jones, M.I.C.E., the Chairman, said satisfactory progress was made by the Company in 1948, but it was deemed unwise to recommend payment of a dividend, bearing in mind the necessity to conserve, as far as possible, the present liquid resources. There was an indebtedness to bankers of over a quarter of a million pounds. They had a very strong balance sheet in spite of the difficulties of the war and post-war years. The Company was supplying an essential commodity, gas, and the by-products of coal which commanded a ready market. Demand was large and the Company was doing its utmost to satisfy the increasing requirements of the 800,000 inhabitants of the city of Montevideo. The Directors were fully cognisant of the fact that a proper return for the investment of capital must be made, a fact also appreciated by the Uruguayan Government, and although it would be unwise to predict the future, he could say that they regarded it with confidence, and the passing of the dividend for 1948 would be taken into consideration when future dividends were recommended. The report was adopted.

PUBLICATIONS

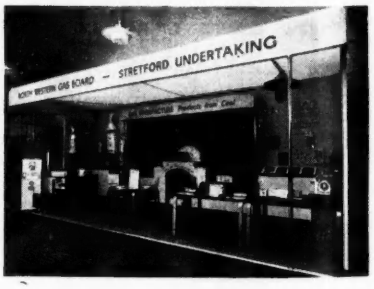
The North Thames Gas Board has issued a leaflet on modern gas appliances as part of their current cooker campaign. Designed for use in showrooms and by salesmen, this illustrated folder presents an attractive display of eight different types of cookers, together with a selection of hot water appliances, including washing machines, sink and water heaters. With Mr. Therm embracing a cooker on the cover, the leaflet is a colourful addition to the Board's sales material.

* * *

From the Gas Council we have received a new booklet, *Gas in Your Home*, which has been published in collaboration with the Council by Educational Productions, Ltd. It contains practical information on the operation of domestic appliances by the use of simple diagrams, and brief details of the industry and its products. As an aid to the more efficient operation and maintenance of appliances in the home this publication has much to be recommended; its relatively high price may preclude a wide sale to householders. Education authorities, teachers and lecturers will find it useful for demonstration purposes, and an excellent introduction to the subject. The booklet can be obtained either from the Gas Council, 1, Grosvenor Place, London, S.W.1, or from the publishers at 17, Denbigh Street, London, S.W.1, price 1s. 6d.

MADE IN STRETFORD

The 'Made in Stretford' exhibition provided an excellent opportunity for the North Western Gas Board, Stretford undertaking, to present in a colourful form how gas plays an indispensable rôle in the development of local trades and industries and the welfare of the community. Last year 2,626 mill. cu.ft. of



gas was distributed by the Stretford undertaking, and of this amount no less than 1,397 mill. cu.ft. was supplied to local industrial firms. Gas in the home was also represented by a display of modern domestic gas appliances. Gas films were on show and there was a floodlit window display at the local showroom throughout the period of the exhibition.

Tar Residuals, Ltd., Plantation House, Mincing Lane, London, E.C.3, have, in partnership with Bernuth, Lembcke Co., Inc., of New York, established in New York the firm of Tar Residuals, Incorporated. The address of the new firm is c/o Bernuth, Lembcke Co., Inc., Graybar Building, 420, Lexington Avenue, New York 17, N.Y., U.S.A.